

Opti Rack SOP - Material Handling

Introduction

Animal Care Systems technology is unique in the animal research industry. However, handling the equipment in washrooms is quick and straightforward. This document details the dirty-to-clean cycle with tips to maximize efficiency with each piece of technology.



Washing

Washing Cages

Use a nonmetallic spatula to remove accumulated waste from the cage corners. To extend cage life, avoid banging them on metal surfaces.

Use softer water of 120 to 190 degrees Fahrenheit (49 to 87 C). Excessively hard water may reduce the filter life.

If tunnel washing, orient multiple cage bases in alternating fashion to maximize space (Figure 1).

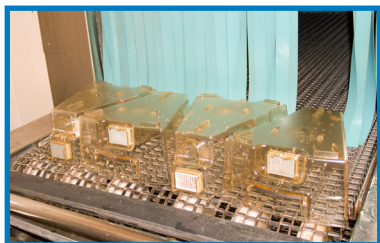


Figure 1



[Tunnel Washer Cage Flip Video](#)



[Dirty Side Processing Video](#)



Cages about to flip upright to receive bedding.

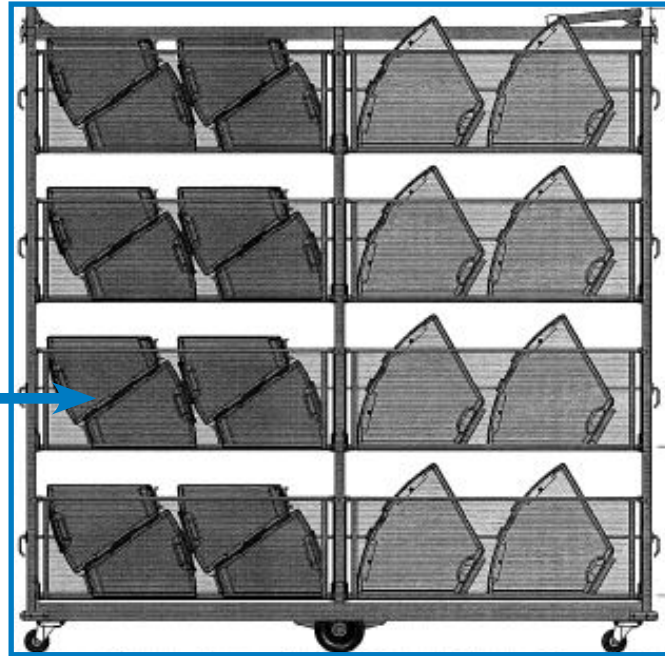
 The use of WD-40, mineral oils, or petroleum jelly will void the warranty for the components it was applied to.

Material Handling Standard Operating Procedure

For wash racks, alternate the orientation of cage bases in sideways fashion facing outward. Insert a feeder in each cage base to maximize efficiency (Figure 2). If washing feeders separately, place upside-down on a tunnel washer conveyor or in rack washers within accessory baskets.



Figure 2



During the wash-sterilization cycle, make sure that all the detergent is completely rinsed off every plastic surface before drying or heat sterilizing to extend the life of the plastic.

Allow cage filters to dry completely before housing animals in the cages.

Washing Exhaust Hoses

To ensure the inside of the exhaust hoses is thoroughly cleaned and disinfected, either spray the inside and outside of the hose with a disinfectant for the recommended contact time, or fill a sink with the proper dilution of disinfectant and submerge the hose for the recommended contact time.

Ensure the hoses are fully rinsed, and then either put into use, or place them in the rack washer with the rack to help keep track of them. Wash exhaust hoses at least once every 12 months to remove passive dust buildup.

Washing Racks

1. Remove all rack components, including cages, exhaust hoses, exhaust caps, rack status monitor, and rack light.
2. Open the bottom drain door.
3. Spray the top and into the central air plenum with water.
4. Place the rack into a rack washer.

Wash racks at least once every 12 months to remove passive dust buildup.

After the wash cycle, make sure the air seal gasket cord is properly seated. If it dislodges during the wash cycle, locate it, and reinstall it ([video demonstration](#)).

Material Handling Standard Operating Procedure

Washing Cage Tops

For the standard cage top rack, the tops insert sideways and sit flush against the bottom. Optimice and all Optirat cage tops fit within the slots (Figure 3). The loaded rack fits easily into a tunnel washer.

For Optimice external water bottle or water bag racks, the cage tops enter the rack narrow end first. For unusually dirty cage tops, place additional space between each cage top (Figure 4).

Wash Optirat Plus cage tops in a tunnel washer upside-down.

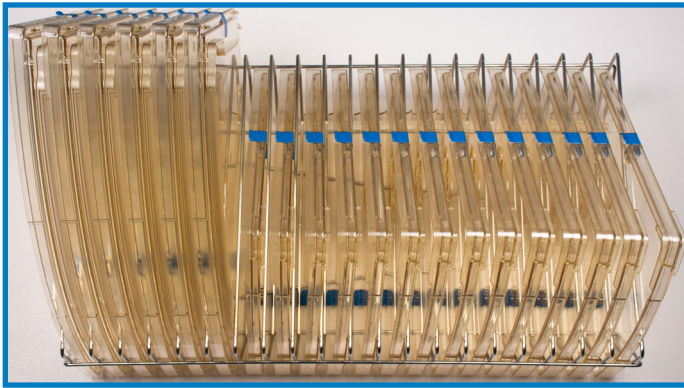


Figure 3

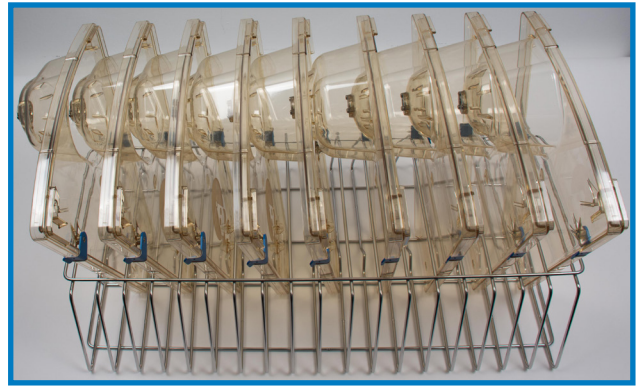


Figure 4

Washing Bottles

1. Remove water bottle caps, and place the caps in an accessory basket for separate washing.
2. Place the water bottles into the bottle basket.
3. Flip the basket (water bottles are now upside down), and then place the loaded bottle basket on the tunnel washer conveyor or in the rack washer with the proper accessory equipment (e.g. bottle cart washer). Ensure the basket lid is locked before flipping.



Disinfection

Animal Care Systems racks, cages, and cage components are compatible with approved disinfecting chemicals. Adhere strictly to the following guidelines.

General Guidelines

- Use only cleaning and disinfectant products that are approved for use.
- Disinfectants and cleaning agents must be diluted in accordance with the manufacturer's instructions.
- Failure to follow recommended dilution ratios can weaken the plastic, cause discoloration, and potentially void the warranty.
- Adhere to the disinfectant manufacturer's recommended contact times; do not exceed these time frames.
- Extended or repeated exposure beyond recommended contact time may damage the cage material and reduce its useful service life.

Process Guidelines

- After disinfection, rinse cages thoroughly with clean water to remove any chemical residue.
- Ensure all chemical residues are removed to protect both the health of the animals and the integrity of the plastic.
- Failure to rinse disinfectants or cleaning products fully may result in chemical etching or premature degradation.

Inspection Guidelines

- Regularly inspect cages for signs of wear, cracking, clouding, or etching.
- Promptly remove from service any cages showing structural damage or excessive wear.
- Perform routine maintenance according to the product guidelines to maximize lifespan and support warranty coverage.

In order to maximize equipment life, consult with your Animal Care Systems representative for specific resistances.

Warranty Limitations

The Animal Care Systems warranty does not cover damage resulting from:

- Use of non-approved disinfectants or cleaning agents.
- Failure to dilute products in accordance with manufacturer guidelines.
- Failure to rinse cages thoroughly after disinfection.
- Using higher-than-recommended temperatures or extended exposure times inconsistent with guidelines.



Your warranty may become void if recommended cleaning and disinfection procedures are not followed.

Sterilization

Sterilizing Cages

Use the bulk cart or change-out rack for large numbers of cages to increase space efficiency and personnel productivity. Stack Optimice® and all Optirat® cage bases five high for sterilization cycles. To go safely above stacks of five, cage height validation must be performed within each facility using biological indicators due to equipment variation and calibration.

Use polysulfone for repeated autoclave use. Filter life varies based on facility conditions, cage usage, and sterilization frequency. **As a general guideline, cage filter paper is designed for up to 70 autoclave cycles and should be replaced at least every 2 years.**

Entire cage assemblies also can be sterilized in stacks of five. See sterilization limits table below.



Allow cage bases to dry completely before housing animals in them.

Change-out Rack

When placing Optirat GenII and Optirat Plus cage bases or assemblies on the accessory shelf *for heat sterilization*, it is **crucial** to eliminate pressure points on the cage parts against the shelf, rack pillar, or other cages.

<u>Cage Sterilization Temperature Limit</u>		
	Sterilization Temperature	Maximum Duration
Polycarbonate	up to 250 F (121 C)	20 minutes
Polysulfone	up to 285 F (141 C)	30 minutes

Sterilizing Racks

If present, remove rack status monitor and rack lights. Platters will warp during a heat cycle if any objects remain on them.



Remove all cages prior to sterilizing a rack.

<u>Rack Sterilization Temperature Limit</u>
250 F (121 C)



Material Handling Standard Operating Procedure

Sterilizing Exhaust Hoses

Exhaust hoses are resistant to temperatures up to 275 degrees F (135 C) for 20 minutes.

Sterilizing Cage Top Racks

Cage tops do not need to be given any additional space during sterilization (Figure 5).

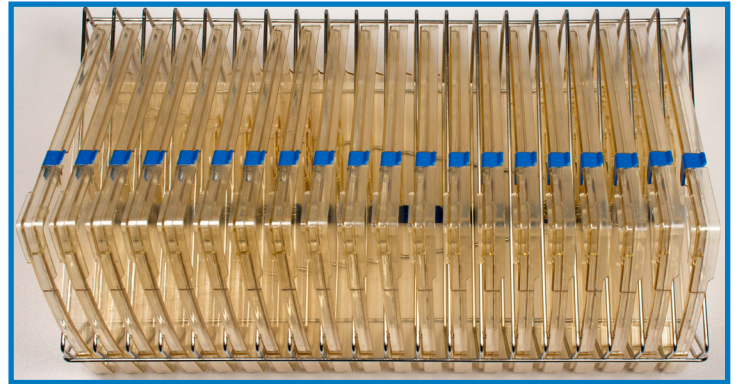


Figure 5

Preparation

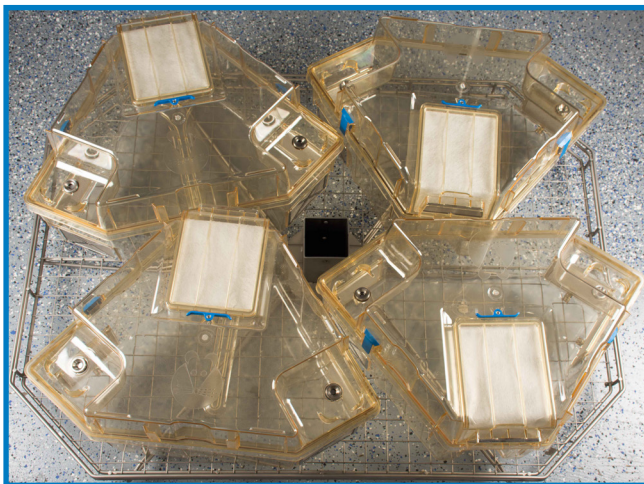


[Assembling on Change-out Rack Video](#)

Change-out Rack

The change-out rack's portability and accessibility make it ideal for building sterile Optimice cage assemblies. Using three or five Optimice cage shelves spaced evenly, up to 100 cage assemblies fit on the change-out rack.

The change-out rack also can hold 35 Optirat GenII or 20 Optirat Plus cage assemblies using accessory shelves. The accessory shelves can be used to transport bottles, cage tops, and other accessories, as well.



Configuration of Optirat Plus cage assemblies (without rack pillar)



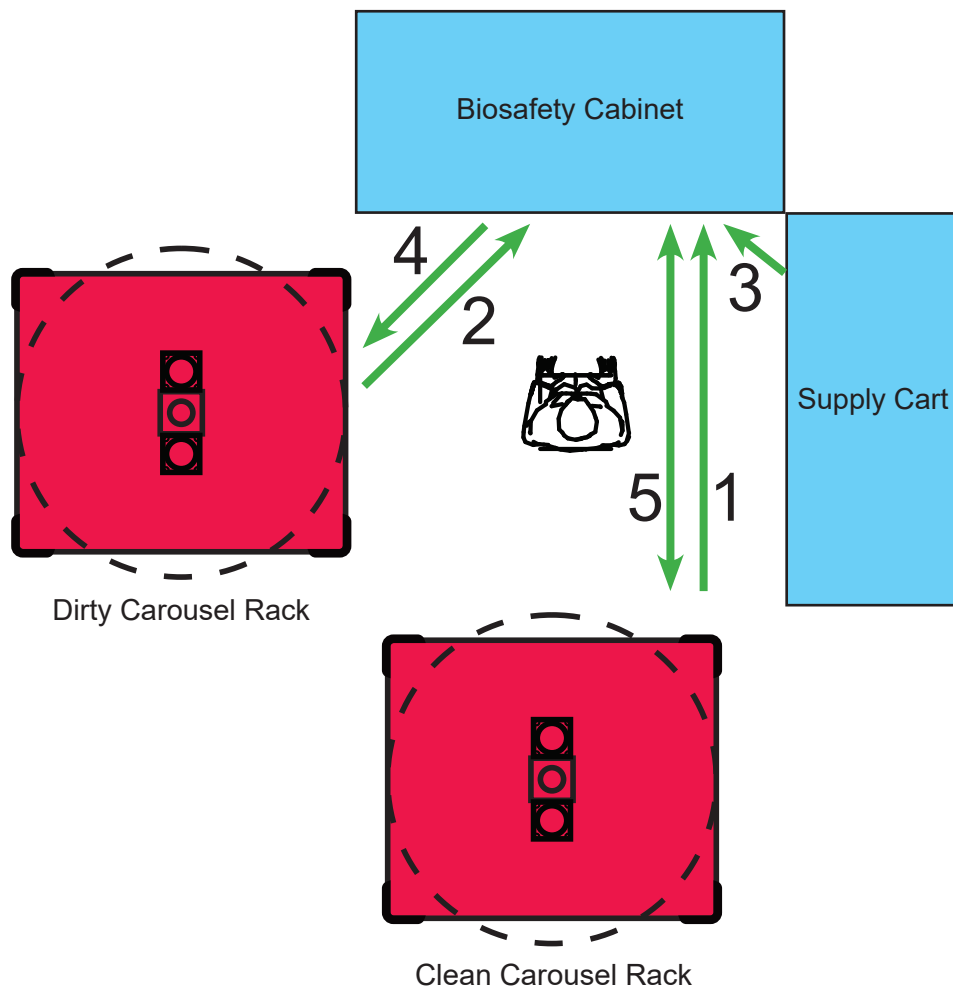
Prepared cage assemblies (100)
on a three-shelf change-out rack

Material Handling Standard Operating Procedure

Optimizing Work Flow

Dirty cages can remain upon the rack during cage changes due to the carousel technology.

1. Husbandry personnel removes a clean cage from the clean rack and places it within the biosafety cabinet.
2. Personnel places a dirty cage from the dirty rack beside the clean cage.
3. Personnel performs a cage change using auxiliary components from the supply cart.
4. Personnel returns empty dirty cage to dirty rack.
5. Personnel returns animal-filled clean cage to clean rack and takes the next empty clean cage, rotating the carousel as they progress.



Preparing Cage Assemblies

Cage assembly preparation varies by facility due to layout uniqueness and equipment on hand. A method of cage preparation: After cages emerge from a bedding dispenser, place four (4) on a work surface. Insert the housing, enrichment, bottle, and feed; cap the cage with a lid, if complete, and then place four more on top of the first set.

Place the sterilized, loaded cage top racks nearby during preparation to quicken assemblies.

Material Handling Standard Operating Procedure

Preparing Bottles

All bottle-filler manufacturers supply manifolds that are compatible with Animal Care Systems water bottle baskets.



Using the Opti Cart for Preparation

Stack cages, bottle baskets (Figure 6), or other components at a stable height on the Opti cart.

Use the Opti Cart to conveniently transport bottle baskets into the clean side or into an animal room.

For large-quantity transportation of any component, the bulk cart provides additional efficiency and stability.



Figure 6: Opti cart with four bottle baskets

Bulk Cart

When placing cage bases or cage assemblies on the bulk cart, alternate the orientation of each cage to maximize space. Ensure the straps are connected prior to transporting tall loads. Up to 192 cage assemblies fit on the bulk cart (Figure 7). When stacking only cage bases, do not exceed 25 cages per stack.



Figure 7

Please contact Animal Care Systems for guidance about optimizing cage processing.